AECOM
1600 Perimeter Park Dr.
Suite 400
Morrisville, NC 27560
www.aecom.com

919 461 1100 tel
919 461 1415 fax

October 12, 2016

Tennessee Valley Authority
1101 Market Street
Chattanooga, Tennessee 37402

Closure and Post Closure Plan
Ash Pond A
EPA Final CCR Rule
TVA Gallatin Fossil Plant
Sumner County, Tennessee

1.0 PURPOSE

This letter documents AECOM's certification of the closure and post-closure plan for the TVA Gallatin Fossil Plant's Ash Pond A.

2.0 CLOSURE AND POST-CLOSURE PLAN

The closure plan describes the steps necessary to close the CCR unit at any time during the life of the unit, and is subject to the requirements described in 40 CFR 257.102(b). The post-closure plan describes the monitoring and maintenance activities to be performed during the post-closure period of the unit, and is subject to the requirements of 40 CFR 257.104(d).

3.0 SUMMARY OF FINDINGS

The attached closure and post-closure plan demonstrates compliance with the requirements set forth in 40 CFR §§ 257.102(b) and 257.104(d).

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AECOM

4.0 QUALIFIED PROFESSIONAL ENGINEER CERTIFICATION

I, Gabe Lang, being a Professional Engineer in good standing in the State of Tennessee, do hereby certify, to the best of my knowledge, information, and belief:

1. that the information contained in this certification is prepared in accordance with the accepted practice of engineering;

2. that the information contained herein is accurate as of the date of my signature below;

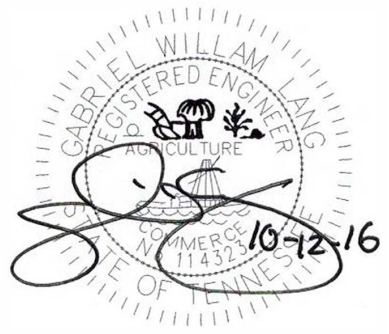
3. that the closure plan for the TVA Gallatin Fossil Plant's Ash Pond A meets the requirements described in 40 CFR 257.102(b) and

4. that the post-closure plan for the TVA Gallatin Fossil Plant's Ash Pond A meets the requirements of 40 CFR 257.104(d).

SIGNATURE _____ DATE ____10/12/16_____

ADDRESS: AECOM
1600 Perimeter Park Dr.
Morrisville, NC 27560
TELEPHONE: (919) 461 1100

ATTACHMENTS: Closure [40 CFR 257.102(b)(1)] and Post-Closure Plan [40 CFR 257.104(d)(1)] for Coal Combustion Residuals (CCR) Existing Surface Impoundments (Ash Pond A, Middle Pond A, Bottom Ash Pond, & Ash Pond E) TVA Gallatin Fossil Plant Revision 0



COAL COMBUSTION PRODUCT DISPOSAL PROGRAM

Tennessee Valley Authority – Ash Pond Complex
Sumner County, Tennessee

Closure [40 CFR 257.102(b)(1)] and Post-Closure Plan [40 CFR 257.104(d)(1)] for Coal Combustion Residuals (CCR)

Existing Surface Impoundments

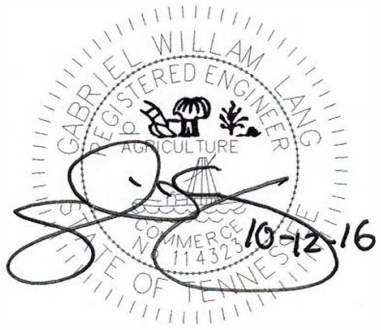
(Ash Pond A, Middle Pond A, Bottom Ash Pond, & Ash Pond E)

TVA Gallatin Fossil Plant

Prepared for

Tennessee Valley Authority
1101 Market Street
Chattanooga, TN 37402-2801

October 12, 2016 – Rev0



Prepared by

AECOM

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1.0 Introduction

This U.S. Environmental Protection Agency Final Coal Combustion Residual Rule (EPA Final CCR Rule) closure and post-closure plan is conceptual and is subject to the completion of all necessary environmental reviews. It describes the Coal Combustion Residual (CCR) closure and post-closure activities at the TVA Gallatin Fossil Plant (GAF) to demonstrate that the Ash Pond Complex including Ash Pond A, Middle Pond A, Bottom Ash Pond, and Ash Pond E will be closed and maintained in accordance with the CCR closure and post-closure requirements of 40 CFR §§257.102 and 104, respectively.

2.0 Written Closure Plan - 40 CFR 257.102(b)(1)

40 CFR 257.102(b)(1). *Written Closure Plan – (1) Content of the Plan. The owner or operator of a CCR unit must prepare a written closure plan that describes the steps necessary to close the CCR unit at any point during the active life of the CCR unit consistent with recognized and generally accepted good engineering practices. The written closure plan must include, at a minimum, the information specified in paragraphs (b)(1)(i) through (vi) of this section.*

(i) A narrative description of how the CCR unit will be closed in accordance with this section.

(ii) If closure of the CCR unit will be accomplished through the removal of CCR from the CCR unit, a description of the procedures to remove the CCR and decontaminate the CCR unit in accordance with paragraph (c) of this section.

(iii) If closure of the CCR unit will be accomplished by leaving CCR in place, a description of the final cover system, designed in accordance with paragraph (d) of this section, and the methods and procedures to be used to install the final cover. The closure plan must also discuss how the final cover system will achieve the performance standards specified in paragraph (d) of this section.

(iv) An estimate of the maximum inventory of CCR ever on-site over the active life of the CCR unit.

(v) An estimate of the largest area of the CCR unit ever requiring a final cover as required by paragraph (d) of this section at any time during the CCR unit's active life.

(vi) *A schedule for completing all activities necessary to satisfy the closure criteria in this section, including an estimate of the year in which all closure activities for the CCR unit will be completed. The schedule should provide sufficient information to describe the sequential steps that will be taken to close the CCR unit, including identification of major milestones such as coordinating and obtaining necessary approvals and permits from other agencies, the dewatering and stabilization phase of CCR surface impoundment closure, or installation of the final cover system, and the estimate timeframes to complete each step or phase of CCR unit closure.*

2.1 Closure Activities- §257.102(b)(1)(i)

TVA is subject to the National Environmental Policy Act, and pursuant to that statute has performed a programmatic environmental impact statement analyzing the environmental impacts resulting from the two primary closure methods set forth in the EPA Final CCR Rule, as well as a "no action" alternative. At a programmatic level, TVA determined that closure-in-place would have fewer overall adverse environmental impacts than closure-by-removal and generally would be environmentally preferable. In addition, TVA performed a site-specific review of 10 CCR impoundments that tiers off the programmatic level review. To the extent a site-specific review has not been performed, the closure method set forth in this document is a preferred alternative still pending further environmental review.

The GAF Ash Pond Complex is proposed to be closed in place. The final cover system installed over Ash Pond A (approximately 197 acres), Middle Pond A (approximately 22 of 31 acres), Bottom Ash Pond (approximately 13 acres), and Ash Pond E (approximately 148 acres) will be designed and constructed to meet 40 CFR 257.102 (d). See **Appendix A** for the GAF Ash Pond Complex Closure Schematic. As shown in **Appendix A** and noted above, 22 of the 31 acres of Middle Pond A will receive the final cover system. The remaining 9 acres is planned to be converted into a process pond to treat plant process flows and coal contact water. The proposed process pond will be designed to meet the requirements of 40 CFR 257.102 and 104. The footprint of the process pond is based upon a preliminary design and is subject to change as the design process continues.

Closure activities include, but are not limited to, decanting, subgrade preparation, relocation of CCR within the closure footprint, final cover system installation, and the establishment of a vegetative cover.

2.2 Closure Type/Closure in Place - §257.102(b)(1)(iii)

The closure of the GAF Ash Pond Complex is proposed to be accomplished by leaving the CCR in place, thus requiring a final cover system and closure design elements enabling it to meet the CCR closure in-place performance standards §257.102(d)(1) described in **Section 2.8**. CCR will be relocated within the closure footprint to achieve closure design elevations, but CCR will not be removed from the footprint.

2.3 Maximum CCR Inventory - §257.102(b)(1)(iv)

The estimated maximum inventory of CCR ever on-site over the active life of the Ash Pond Complex is estimated to be approximately 11.1 million cubic yards (CY). This volume was estimated using a topographic map from 1969 (prior to construction of the Ash Pond Complex) and the latest 2015 GAF site survey. **Appendix B** includes an exhibit of the expected ash depths throughout the Ash Pond Complex.

Currently, only bottom ash is sluiced at GAF. The bottom ash within the sluice stream settles out in the Bottom Ash Pond. The bottom ash is then dredged and reused through state approved means. Therefore, no additional ash currently accumulates in the GAF Ash Pond Complex.

2.4 Largest Area Requiring Final Cover - §257.102(b)(1)(v)

The estimated largest area of the GAF Ash Pond Complex ever acquiring a final cover at any time during the active life of the CCR unit is 389 acres. This represents the current conditions.

2.5 Schedule of Closure Activities - §257.102(b)(1)(vi)

The GAF Ash Pond Complex will be closed in phases. Ash Pond E will be the first pond to initiate closure activities. Prior to the closure of Ash Pond E, the Coal Yard Runoff Ditch will be diverted to Middle Pond A. Infrastructure is in place for this diversion to take place. Development of construction level design documents for the Ash Pond E closure is scheduled to begin in 2017 with construction to follow.

The Bottom Ash Pond will be the second pond where closure will be initiated. A new Bottom Ash Dewatering Facility is under design and construction and is scheduled to be completed in 2018. Following start-up of the Bottom Ash Dewatering Facility, closure of the Bottom Ash Pond will be initiated.

Middle Pond A is scheduled to be the third pond where closure will be initiated. A portion of Middle Pond A will be converted into a new process pond to treat plant process water and coal contact water.

The final pond to be closed is Ash Pond A. The closure of Ash Pond A cannot begin until the portion of Middle Pond A where the process pond is proposed is closed and the process pond constructed. The process pond is scheduled to be complete by the end of 2019.

The closure schedule for each pond within the GAF Ash Pond Complex is subject to change due to ongoing litigation, contractor availability, subsurface conditions, weather, equipment, and available material resources.

The following sequential steps necessary for completing the closure activities of 40 CFR 257.102 and their estimated scheduled completion dates are summarized in **Table 1**.

Table 1: Schedule of Closure Activities

	Closure Activity	Estimated Date			
		Ash Pond E	Bottom Ash Pond	Middle Pond A	Ash Pond A
1.	Preliminary Planning, Design, and Regulatory Agency Permitting.	2017	2018	2018	2019
2.	Decanting, Subgrade Stabilization, and Mass Grading	2018	2019	2019	2020
3.	Final Cover Installation	2019	2020	2020	2021
4.	Completion of closure	2021	2022	2022	2025
5.	Completion of post-closure period	2051	2052	2052	2055

2.6 Estimated year of Closure Completion- §257.102(b)(1)(vi)

The estimated year for completion of all closure activities is 2025 as summarized in **Table 1.**

2.7 Request for Time Extension

If it is estimated that the time required to complete closure will exceed the regulatory timeframes, site-specific information, factors and considerations will be provided to support any time extensions.

2.8 Performance Standards: CCR Closure In-Place - 40 CFR 257.102(d)(1)

40 CFR 257.102(d)(1). *Closure performance standard when leaving CCR in place –*

(1) The owner or operator of a CCR unit must ensure that, at a minimum, the CCR unit is closed in a manner that will:

(i) Control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere;

(ii) Preclude the probability of future impoundment of water, sediment, or slurry;

(iii) Include measures that provide for major slope stability to prevent the sloughing or movement of the final cover system during the closure and post-closure care period;

(iv) Minimize the need for further maintenance of the CCR unit; and

(v) Be completed in the shortest amount of time consistent with recognized and generally accepted good engineering practices.

2.8.1 Control of Infiltration and Releases - §257.102(d)(1)(i)

TVA will control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere, through the following measures:

1) Installation of a final cover system that minimizes infiltration. Design specifications of the final cover system are described in **Section 2.10.1**.
2) Using appropriate erosion and sediment control.
3) Surface grading described in **Section 2.8.2.**
4) The implementation and maintenance of the groundwater monitoring network described in **Section 3.1.3**.
5) Maintenance of the final cover surface as described in **Section 3.1.1**.

2.8.2 Prevention of Future Impoundment of Water, Sediment, or Slurry - §257.102(d)(1)(ii)

TVA will preclude the probability of future impoundment of water, sediment, or slurry at the Ash Pond Complex, as illustrated in the proposed cap-in-place grading concept in **Appendix A**, and through the following measures:

1) Final Cover System: The final cover system will be designed to minimize infiltration. See **Section 2.10.1**.
2) Surface Grading: The final cover preliminary grading schematic is designed to promote the conveyance of stormwater off of the surface impoundment cap. This is accomplished by use of 3% minimum cross sectional grades and 1% typical (0.44% minimum) slopes for conveyance channels.
3) Infiltration Collection System: As shown in **Figure 1**, the typical cap drainage ditch will include a 6” perforated pipe, placed over a geocomposite flexible membrane liner (FML). The perforated pipe will promote the conveyance of stormwater runoff flowing through the rip rap in the channel. The geocomposite FML includes a drainage layer to collect and convey any infiltration as well as a 40-mil. LLDPE geomembrane to create an additional impervious barrier.

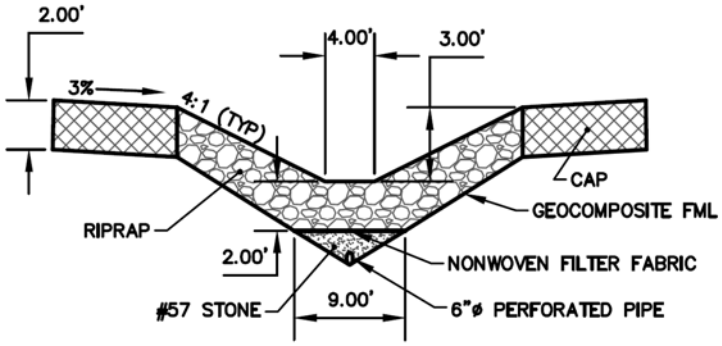

Figure 1: Typical Drainage Ditch Detail

4) Run-on Diversion Ditch: The preliminary grading schematic includes a run-on diversion ditch designed to convey 70-80% of offsite drainage away from the surface impoundment cap. The diversion ditch details can be found in **Appendix A**.

2.8.3 Slope Stability Measures - §257.102(d)(1)(iii)

TVA will include measures that reduce risk of sloughing or movement of the final cover system during the closure and post-closure period, including:

1) The impoundment will be decanted sufficiently to remove free liquids.
2) Compaction of the subgrade to provide a stable and competent base for the construction of the final cover system will be performed prior to final cover installation. Drying or stabilization of the CCR material may be required to allow compaction of the CCR material.
3) A maximum final cover slope of 3H:1V (horizontal to vertical) to allow for successful compaction while providing stable slopes. This will prevent sloughing or movement of the final cover system during closure and post-closure with adequate internal and interface shear strength to provide cover system stability safety factors consistent with those commonly required in the solid waste industry.

2.8.4 CCR Unit Maintenance - §257.102(d)(1)(iv)

TVA will minimize the need for further maintenance of the CCR unit.

The final cover system will be vegetated, or covered with rip rap or other revetment, or synthetic turf to minimize erosion and future maintenance requirements. Preparation of the vegetative cover will include seeding, mulching, and any necessary fertilization at a minimum. Temporary erosion control blankets will be used if necessary to provide seedbed protection and prevent wash-out of seed and fertilizer during vegetation establishment.

2.8.5 Completion of Closure - §257.102(d)(1)(v)

Closure will be completed in the shortest amount of time practical, consistent with recognized and generally accepted good engineering practices.

2.9 Drainage and Stabilization of Surface Impoundments - §257.102(d)(2)

40 CFR 257.102(d)(2). *Drainage and stabilization of CCR surface impoundments.*

The owner or operator of a CCR surface impoundment or any lateral expansion of a CCR surface impoundment must meet the requirements of paragraphs (d)(2)(i) and (ii) of this section prior to installing the final cover system required under paragraph (d)(3) of this section.

(i) Free liquids must be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues.

(ii) Remaining wastes must be stabilized sufficient to support the final cover system.

Prior to installation of a final cover system to a CCR surface impoundment:

- Free liquids will be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues; and
- Remaining wastes will be stabilized sufficient to support the final cover system.

2.10 Final Cover System Design (or Alternative) - §257.102(d)(3)

40 CFR 257.102(d)(3). *Final cover system. If a CCR unit is closed by leaving CCR in place, the owner or operator must install a final cover system that is designed to minimize infiltration and erosion, and at a minimum, meets the requirements of paragraph (d)(3)(i) of this section, or the requirements of the alternative final cover system specified in paragraph (d)(3)(ii) of this section.*

(i) The final cover system must be designed and constructed to meet the criteria in paragraphs (d)(3)(i)(A) through (D) of this section. The design of the final cover system must be included in the written closure plan required by paragraph (b) of this section.

(A) The permeability of the final cover system must be less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than 1×10^{-5} cm/sec, whichever is less.

(B) The infiltration of liquids through the closed CCR unit must be minimized by the use of an infiltration layer that contains a minimum of 18 inches of earthen material.

(C) The erosion of the final cover system must be minimized by the use of an erosion layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth.

(D) The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.

(ii) The owner or operator may select an alternative final cover system design, provided the alternative final cover system is designed and constructed to meet the criteria in paragraphs (d)(3)(ii)(A) through (C) of this section. The design of the final cover system must be included in the written closure plan required by paragraph (b) of this section.

(A) The design of the final cover system must include an infiltration layer that provides an equivalent reduction in infiltration as the infiltration layer specified in paragraphs (d)(3)(i)(A) and (B) of this section.

(B) The design of the final cover system must include an erosion layer that provides equivalent protection from wind or water erosion as the erosion layer specified in paragraph (d)(3)(i)(C) of this section..

(C) The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.

2.10.1 Final Cover System Design Standards - §257.102(d)(3)(i)

The final cover system will be designed to minimize infiltration and erosion, consisting of the following elements:

- Cap Cover Soil: A minimum 18-inch infiltration layer of earthen materials with permeability no greater than $1x10^{-5}$ cm/sec
- Top Soil: A minimum 6-inch erosion layer that contains earthen material that is capable of sustaining native plant growth
- Geocomposite and Geomembrane: In addition to the requirements set forth in §257.102(d)(3)(i), the final cover system design will include a geocomposite layer to promote the conveyance of any infiltration through the cap cover soil to the surface drainage system. A 40-mil. LLDPE geomembrane will also be included to provide an additional impervious barrier over the CCR.

Disruption of the integrity of the final cover system will be minimized through a design that accommodates settling and subsidence.

Refer to **Figure 2** for an illustration of the Final Cap and Cover.

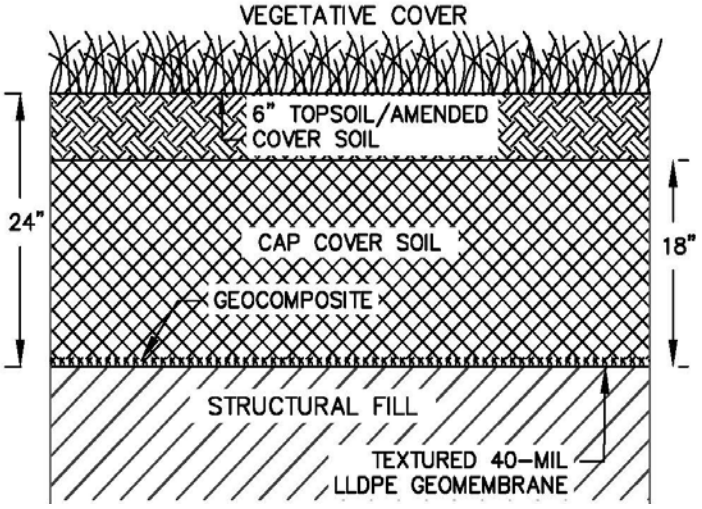

Figure 2: Typical Final Cap and Cover Detail

2.10.2 Alternative Final Cover System Design - §257.102(d)(3)(ii)

An alternative final cover system design may be selected provided it achieves an equivalent standard to **Section 2.10.1** for the following:

- An infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in **Section 2.10.1**.
- An erosion layer that provides equivalent protection from wind or water erosion as the erosion layer specified in **Section 2.10.1**.
- The minimization of any disruption of the integrity of the final cover system through a design that accommodates settling and subsidence.

Of note, synthetic turf will be evaluated as an alternative to the topsoil and vegetative cover.

2.10.3 Methods and Procedures for Installation of Final Cover - §257.102(b)(1)(iii)

As required by 40 CFR 257.102(b)(1)(iii), the following methods and procedures will be used in the installation of the final cover.

After the completion of decanting, drying, and stabilization if necessary, the existing subgrade will be compacted to provide a stable and competent base for the final cover system in the impoundments. Generally, fill material (required to bring the area to design grades prior to final cover system construction) will be CCR material moved within the impoundments. However, an estimated 700,000 compacted cubic yards (CCY) of soil fill or beneficial fill will be required to achieve desired grade shown in the GAF Ash Pond Complex Closure Schematic (**Appendix A**).

The final grades can be found in **Appendix A**. The final grades will consist of 18" of cap cover soil placed on top of the subbase grades, followed by 6" of top soil. See **Figure 2** for Typical Final Cap and Cover. Finally, vegetation will be established on the final cover surface. It is anticipated that if the cover system that is depicted in **Figure 2** is selected that approximately 852,000 CCY of cap cover soil and 285,000 CCY of topsoil will be required to achieve final grades. Synthetic turf will also be evaluated as an alternative to the topsoil and vegetative cover.

2.10.4 Professional Engineer Certification - § 257.102(d)(3)(iii)

40 CFR 257.102(d)(3)(iii). *The owner or operator of the CCR unit must obtain a written certification from a qualified professional engineer that the design of the final cover system meets the requirements of this section.*

A professional engineer has provided a written certification stating that the design of the final cover system meets the requirements of 40 CFR 257.102. The certification has been included in the facility's notification of intent to close the Ash Pond Complex, as per 40 CFR 257.102(g).

3.0 Written Post-Closure Plan - 40 CFR 257.104(d)(1)

40 CFR 257.104(d)(1). *Written Post-Closure Plan. (1) Content of the plan. The owner or operator of a CCR unit must prepare a written post-closure plan that includes at a minimum, the information specified in paragraph (d)(1)(i) through (iii) of this section.*

(i) A description of the monitoring and maintenance activities required in paragraph (b) of this section for the CCR unit, and the frequency at which these activities will be performed;

(ii) The name, address, telephone number, and email address of the person or office to contact about the facility during the post-closure care period;

(iii) A description of the planned uses of the property during the post-closure period. Post-closure use of the property shall not disturb the integrity of the final cover, liner(s), or any other component of the containment system, or the function of the monitoring system unless necessary to comply with the requirements in this subpart. Any other disturbance is allowed if the owner or operator of the CCR unit demonstrates that disturbance of the final cover, liner, or other component of the containment system, including any removal of CCR, will not increase the potential threat to human health or the environment. The demonstration must be certified by a qualified professional engineer, and notification shall be provided to the State Director that the demonstration has been placed in the operating record and on the owner's or operator's publicly accessible internet site.

3.1 Monitoring and Maintenance Activities - §257.104(d)(1)(i)

40 CFR 257.104(b). *Post-closure care maintenance requirements. Following closure of the CCR unit, the owner or operator must conduct post-closure care for the CCR unit, which must consist of at least the following:*

(1) Maintaining the integrity and effectiveness of the final cover system, including making repairs to the final cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover;

(2) If the CCR unit is subject to the design criteria under §257.70, maintaining the integrity and effectiveness of the leachate collection and removal system and operating the leachate collection and removal system in accordance with the requirements of §257.70; and

(3) Maintaining the groundwater monitoring system and monitoring the groundwater in accordance with the requirements of §§257.90 through 257.98.

In accordance with 40 CFR 257.104(d)(1)(i), post-closure care for the Ash Pond Complex will address the following systems as required under 40 CFR 257.104(b), along with the frequencies for the identified monitoring and maintenance activities:

- Final cover system;
- Leachate collection and removal system; and
- Groundwater monitoring system.

3.1.1 Final Cover System - § 257.104(b)(1)

TVA will maintain the integrity and effectiveness of the final cover system, and make repairs as necessary to correct the effects of settlement, subsidence, erosion, and other events, and prevent run-on and run-off from eroding or otherwise damaging the final cover.

The final cover will be maintained by inspection and corrective measures. Vegetated areas will be mowed a minimum of two times per growing season, or more frequently as needed. Deep rooted vegetation will be prohibited as vegetative cover and controlled during routine maintenance. If the area has less than approximately 75 percent coverage by grass based on visual inspections, the area will be reworked and reseeded. Fertilizer or other soil amendments may be applied, as necessary, to promote the re-establishment of a self-sustaining vegetative cover.

3.1.2 Leachate Collection and Removal System - §257.104(b)(2)

No leachate collection and removal system is associated with the GAF Pond Complex.

3.1.3 Groundwater Monitoring System - §257.104(b)(3).

The groundwater monitoring system will be designed and maintained in accordance with the EPA Final CCR Rule, 40 CFR §§257.90 through 98.

All monitoring devices including groundwater wells will be maintained throughout the active life and post-closure period of the Ash Pond Complex.

3.2 Contact Information - §257.104(d)(1)(ii)

The following contact information is provided for the Gallatin Fossil Plant for the post-closure period:

Owner: Tennessee Valley Authority, as agent for the United States of America

Contact: Civil Projects & CCP Management, Strategy and Engineering
GAF Ash Pond Complex
1101 Market Street
Chattanooga, TN 37402-2801

Phone: 844-342-0012

Email: tvainfo@tva.com

3.3 Planned Uses - §257.104(d)(1)(iii)

The planned use of the property during the post-closure period is a green space. The vegetative cover will be inspected regularly to maintain a healthy stand of vegetation, and site inspections will be required to evaluate stressed vegetation and locate signs of erosion in the vegetative cover.

Post-closure use of the property will not disturb the integrity of the final cover, liner(s), or any other component of the final cover system, or the function of the monitoring systems, unless necessary to comply with the requirements of the EPA Final CCR Rule under 40 CFR Part 257.

Any other disturbance is allowed if the owner or operator of the CCR unit demonstrates that disturbance of the final cover, liner, or other component of the final cover system, including any removal of CCR, will not increase the potential threat to human health or the environment. The demonstration must be certified by a qualified professional engineer, and notification shall be provided to the State Director that the demonstration has been placed in the operating record and on the owner's or operator's publicly accessible internet site.

4.0 References

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APPENDIX A

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NPDES 001

STILLING POND D

STILLING POND B

STILLING POND C

ASH POND E

ASH POND A

0 600' 1200'

GRAPHIC SCALE

LEGEND	
	EXISTING CULVERT
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	APPROXIMATE POND LIMITS
	EXISTING ROAD

POND LIMITS (TYP)

CUMBERLAND RIVER
100 YEAR FLOOD ELEVATION 452.00

HAUL ROAD

HAUL ROAD CULVERT

HAUL ROAD CULVERT

RAIL LOOP CULVERT

LANDFILL SEDIMENT BASIN #2

LANDFILL SEDIMENT BASIN #1

MIDDLE POND A

BOTTOM ASH POND

NON-REGISTERED SITE

TO MAIN PLANT

STEAM PLANT ROAD

NORTH RAIL LOOP LANDFILL

NOTE: THIS CLOSURE PLAN IS CONCEPTUAL AND IS SUBJECT TO THE COMPLETION OF ALL NECESSARY ENVIRONMENTAL REVIEWS.

AECOM

GALLATIN FOSSIL PLANT

TENNESSEE VALLEY AUTHORITY

ASH POND COMPLEX
CAP-IN-PLACE CONCEPTUAL GRADING
EXISTING PLAN VIEW

DRAWN BY:	CHECKED BY:	PROJECT No:	DATE:	EXHIBIT
NP	DS	60492745/60492874	09/02/16	1

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NPDES 001

MINIMUM OUTFALL INVERT TO STILLING PONDS 456 (TYP)

STILLING POND D

CAP LIMITS

DIVIDER DIKE ROADWAY TO BE LOWERED

STORM CONVEYANCE THROUGH EXISTING DAM 0.5% (TYP)

STILLING POND C

STILLING POND B

0 600' 1200'

GRAPHIC SCALE

LEGEND

- EXISTING/PROPOSED CULVERT
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- APPROXIMATE POND LIMITS
- EXISTING ROAD
- PROPOSED CAP LIMITS
- PROPOSED DRAINAGE PATH
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR

CUMBERLAND RIVER
100 YEAR FLOOD ELEVATION 452.00

TO BE FILLED FOR POSITIVE DRAINAGE

PROPOSED 12'x4' BOX CULVERT AND OUTFALL CHANNEL, ENERGY DISSIPATION MEASURES REQUIRED, DISCHARGE TO CUMBERLAND 452.5

STORM CONVEYANCE UNDER HAUL ROAD 0.88%

BOTTOM ASH POND

NON-REGISTERED SITE

HAUL ROAD

HAUL ROAD CULVERT

1240 LF @ 0.23%

710 LF @ 0.56%

RAIL LOOP CULVERT

LANDFILL SEDIMENT BASIN #2

LANDFILL SEDIMENT BASIN #1

MIDDLE POND A

HAUL ROAD CULVERT

PROPOSED RUN-ON DIVERSION DITCH (0.5% TYP) (B 2|5)

MIDDLE POND A (FUTURE POTENTIAL PROCESS POND LOCATION)

MIDDLE POND A

NORTH RAIL LOOP LANDFILL

STEAM PLANT ROAD

TO MAIN PLANT

NOTE: THIS CLOSURE PLAN IS CONCEPTUAL AND IS SUBJECT TO THE COMPLETION OF ALL NECESSARY ENVIRONMENTAL REVIEWS.

AECOM

GALLATIN FOSSIL PLANT

TENNESSEE VALLEY AUTHORITY

ASH POND COMPLEX
CAP-IN-PLACE CONCEPTUAL FINISHED GRADING PLAN VIEW

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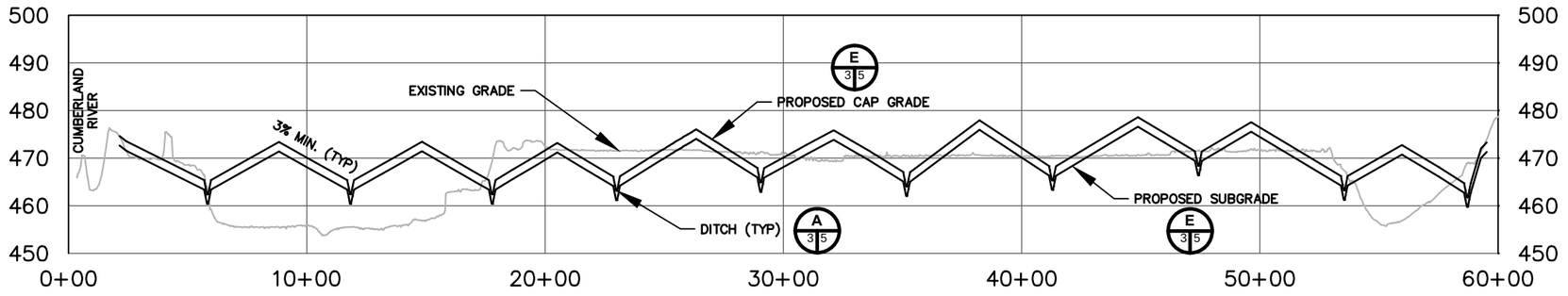
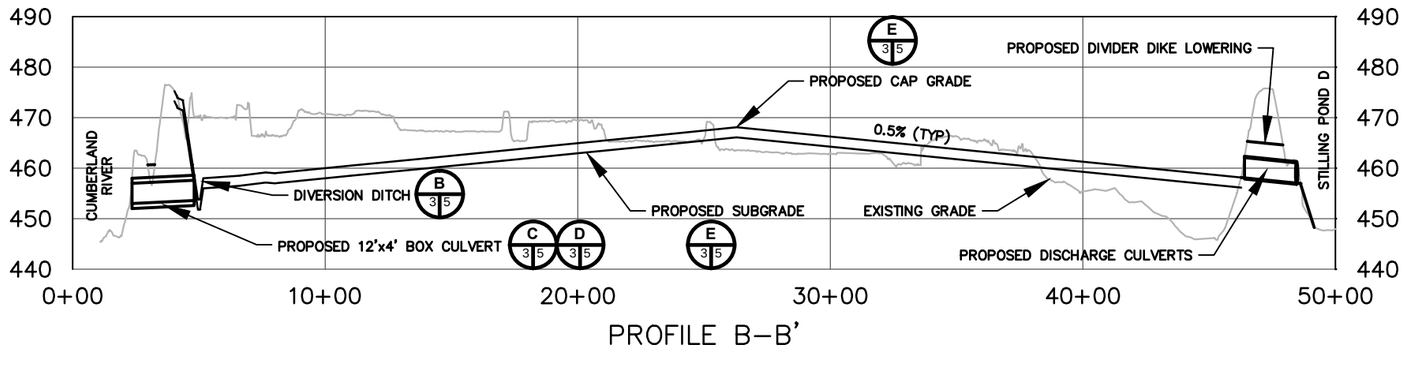
NP	DS	60492745/60492874	09/02/16	2



PROFILE A–A'



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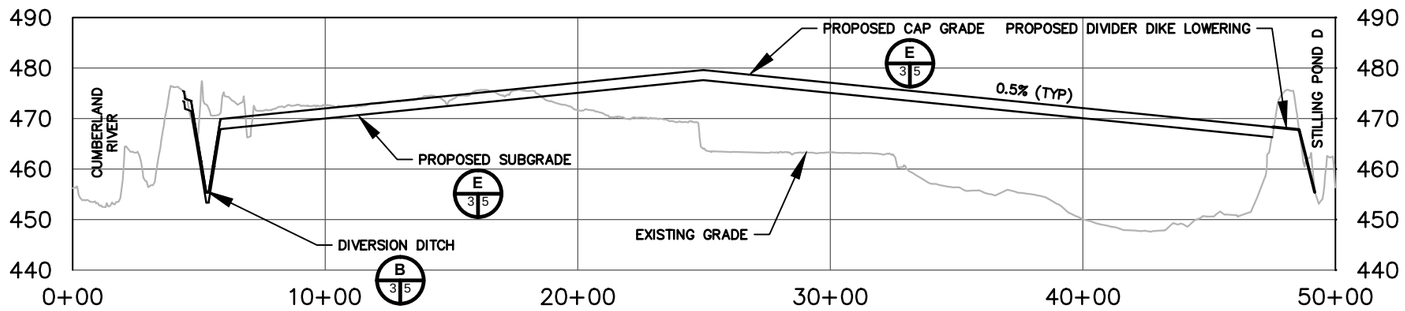
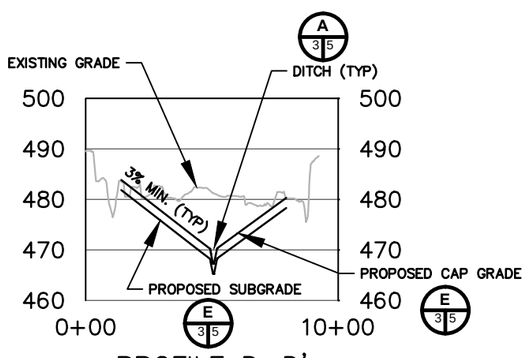


PROFILE C–C'



PROFILE D–D'

HORIZ. 0 600' 1200'

VERT. 0 30' 60'

GRAPHIC SCALE

NOTE: THIS CLOSURE PLAN IS CONCEPTUAL AND IS SUBJECT TO THE COMPLETION OF ALL NECESSARY ENVIRONMENTAL REVIEWS.

AECOM

GALLATIN FOSSIL PLANT

TENNESSEE VALLEY AUTHORITY

ASH POND COMPLEX
CAP-IN-PLACE CONCEPTUAL GRADING
PROFILE A-A', B-B', C-C', & D-D'

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NP	DS	60492745/60492874	09/02/16	3

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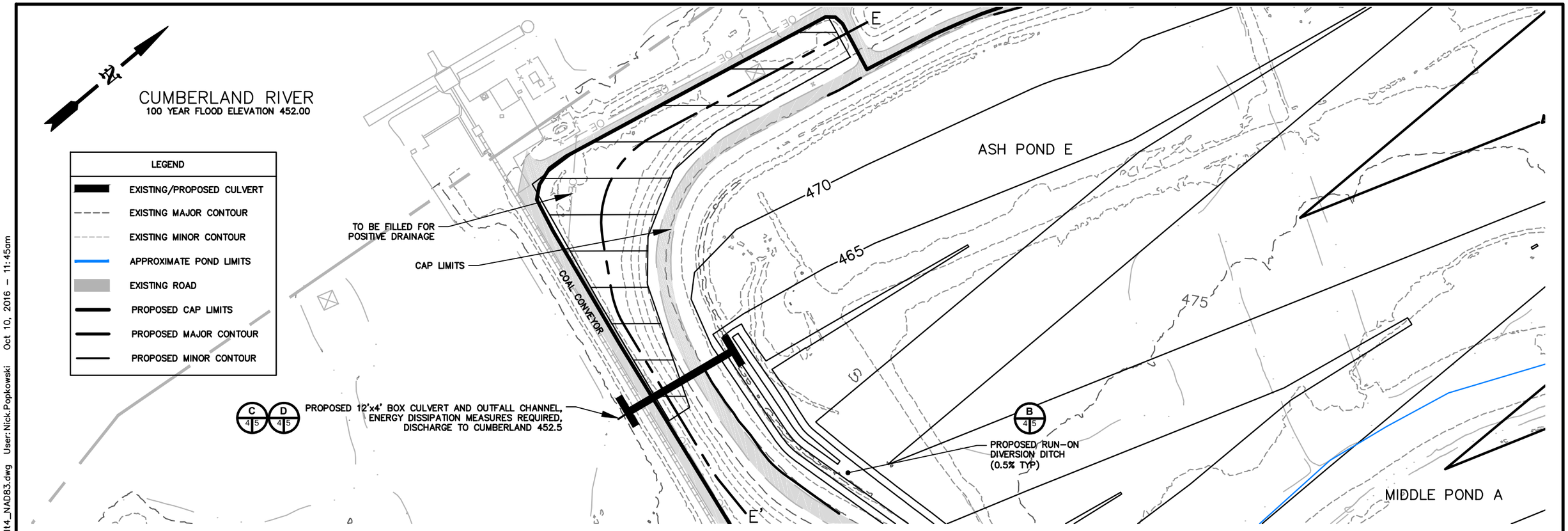
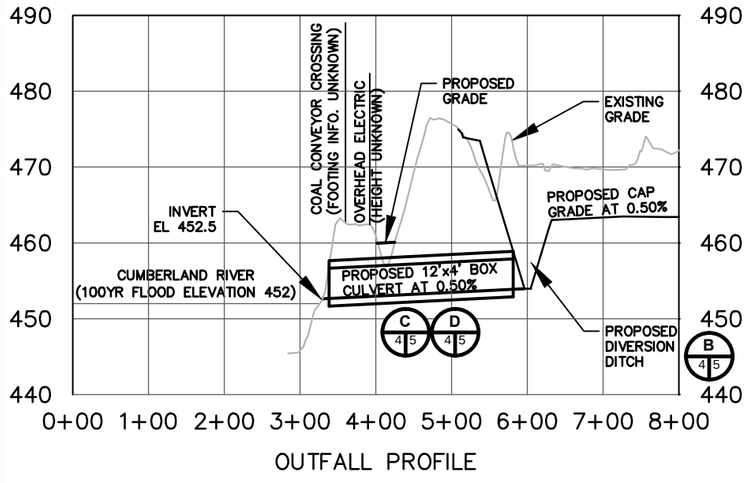
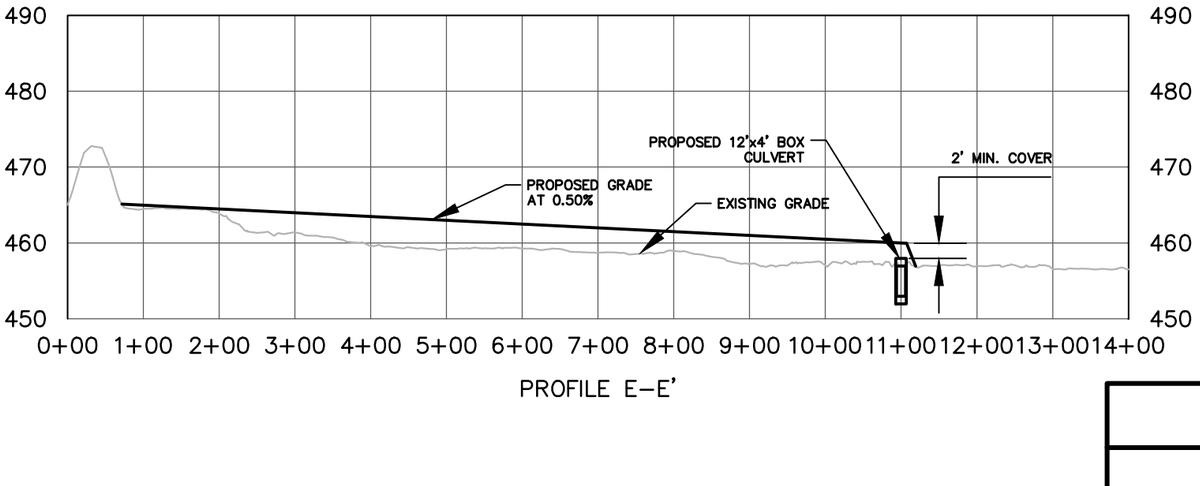




OUTFALL PROFILE



PROFILE E–E'

NOTE: THIS CLOSURE PLAN IS CONCEPTUAL AND IS SUBJECT TO THE COMPLETION OF ALL NECESSARY ENVIRONMENTAL REVIEWS.

AECOM

GALLATIN FOSSIL PLANT

TENNESSEE VALLEY AUTHORITY

ASH POND COMPLEX
CAP-IN-PLACE CONCEPTUAL GRADING
OUTFALL PROFILE & PROFILE E-E'

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NP	DS	60492745/60492874	09/02/16	4

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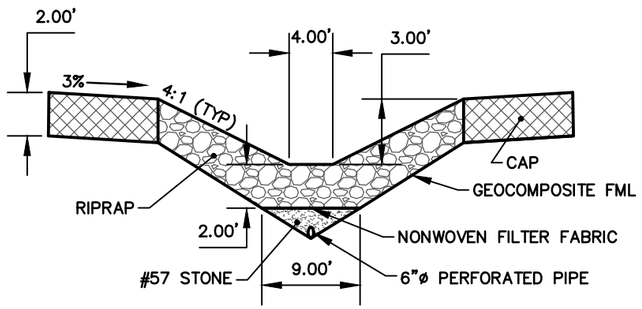
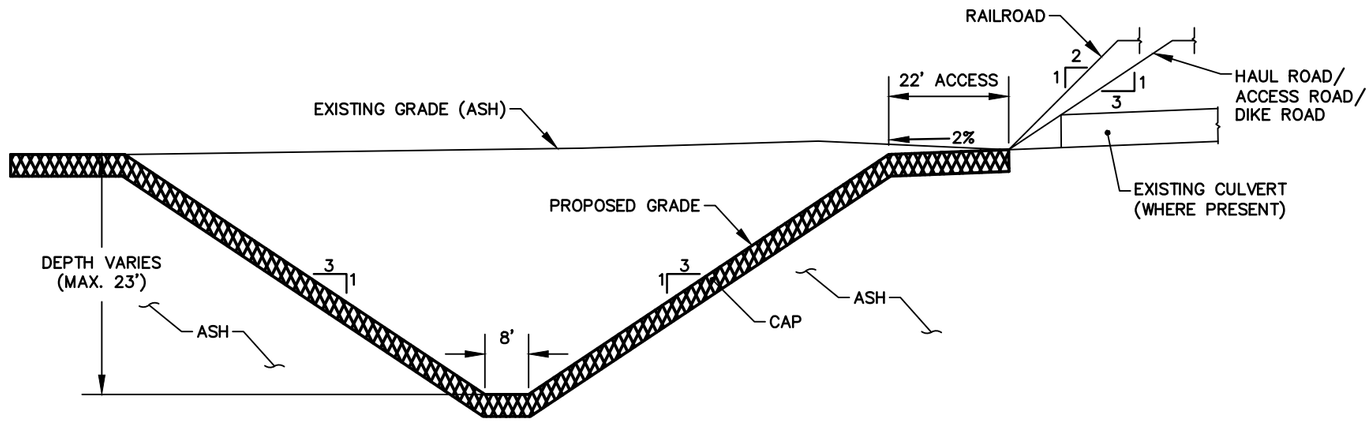
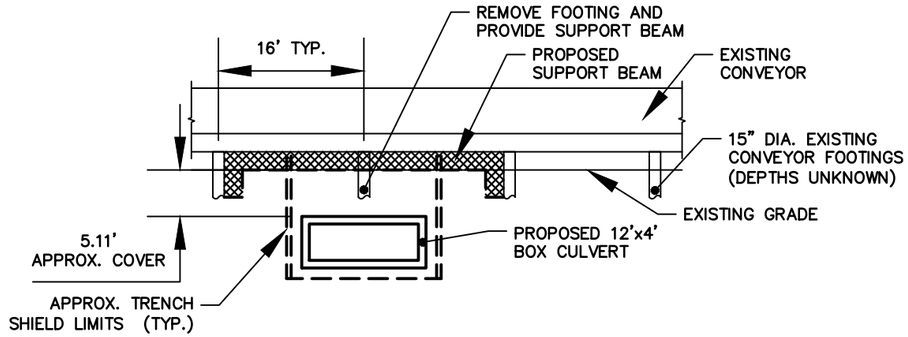


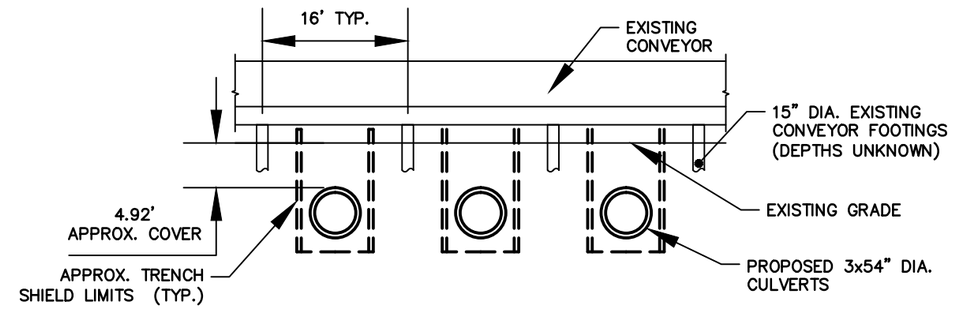
A 3|5 TYPICAL DITCH DETAIL
N.T.S.



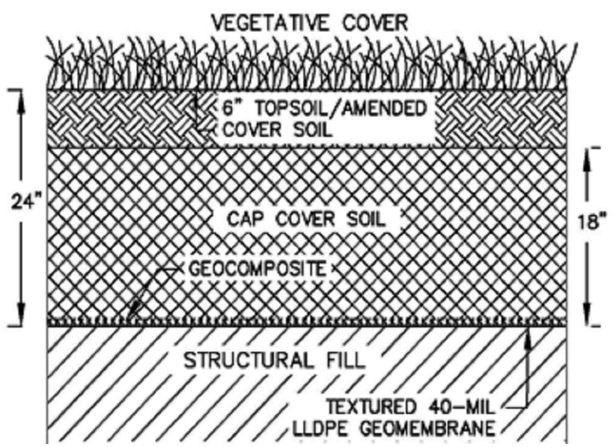
B 2|5 TYPICAL RUN-ON DIVERSION DITCH DETAIL
N.T.S.
*3,4



C 2|5 TYPICAL CROSS SECTION – PROPOSED 12'x4' BOX CULVERT
N.T.S.
*3



D 2|5 TYPICAL CROSS SECTION – PROPOSED 3x54" DIA. CULVERTS ALTERNATE
N.T.S.
*3



E 3|5 TYPICAL FINAL CAP AND COVER
N.T.S.

NOTE: THIS CLOSURE PLAN IS CONCEPTUAL AND IS SUBJECT TO THE COMPLETION OF ALL NECESSARY ENVIRONMENTAL REVIEWS.

AECOM

GALLATIN FOSSIL PLANT

TENNESSEE VALLEY AUTHORITY

ASH POND COMPLEX
CAP-IN-PLACE CONCEPTUAL GRADING
TYPICAL DETAILS

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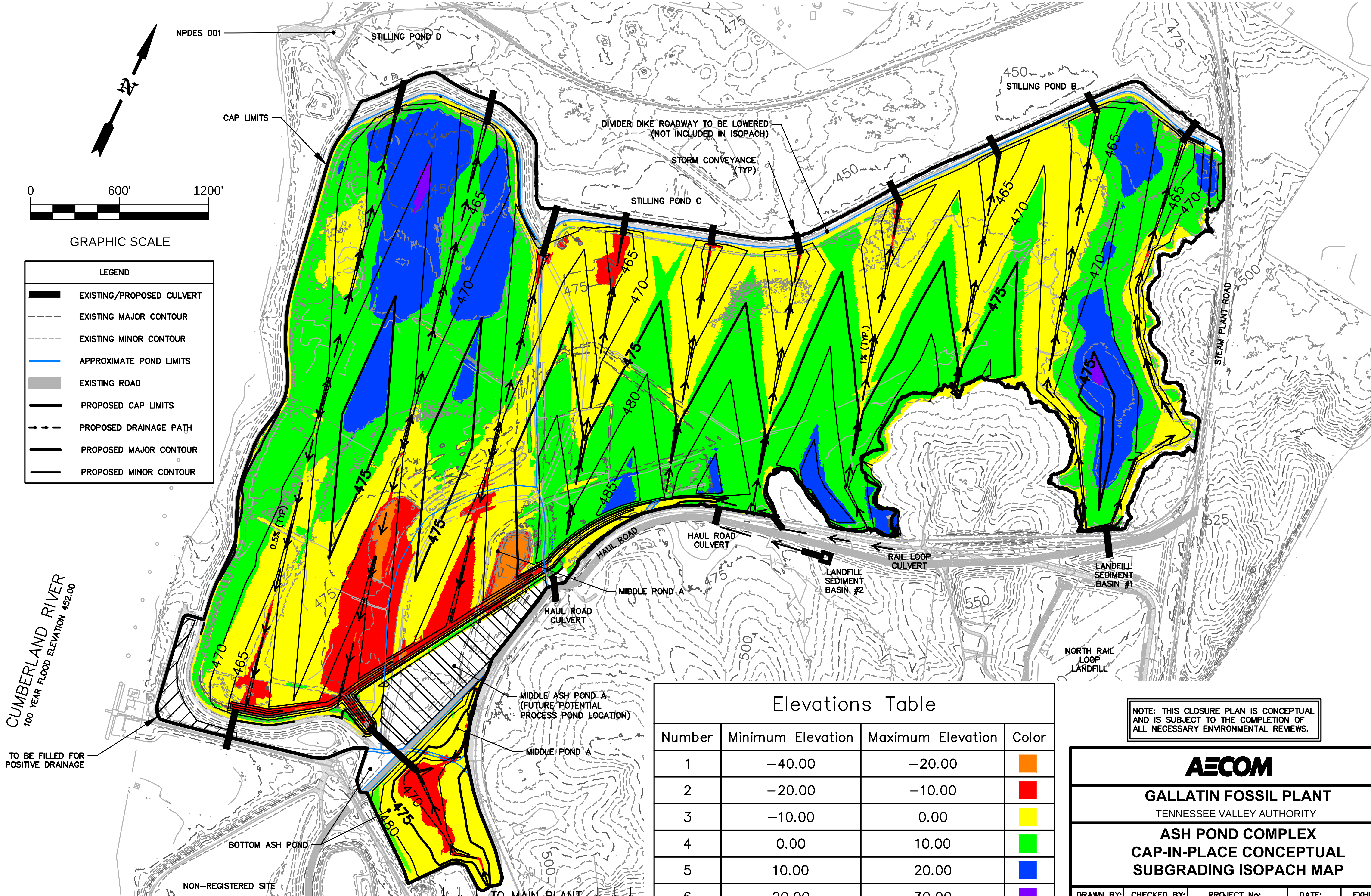

LEGEND

- EXISTING/PROPOSED CULVERT
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- APPROXIMATE POND LIMITS
- EXISTING ROAD
- PROPOSED CAP LIMITS
- PROPOSED DRAINAGE PATH
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR

Elevations Table

Number	Minimum Elevation	Maximum Elevation	Color
1	−40.00	−20.00	Orange
2	−20.00	−10.00	Red
3	−10.00	0.00	Yellow
4	0.00	10.00	Green
5	10.00	20.00	Blue
6	20.00	30.00	Purple

NOTE: THIS CLOSURE PLAN IS CONCEPTUAL AND IS SUBJECT TO THE COMPLETION OF ALL NECESSARY ENVIRONMENTAL REVIEWS.

AECOM

GALLATIN FOSSIL PLANT

TENNESSEE VALLEY AUTHORITY

ASH POND COMPLEX CAP-IN-PLACE CONCEPTUAL SUBGRADING ISOPACH MAP

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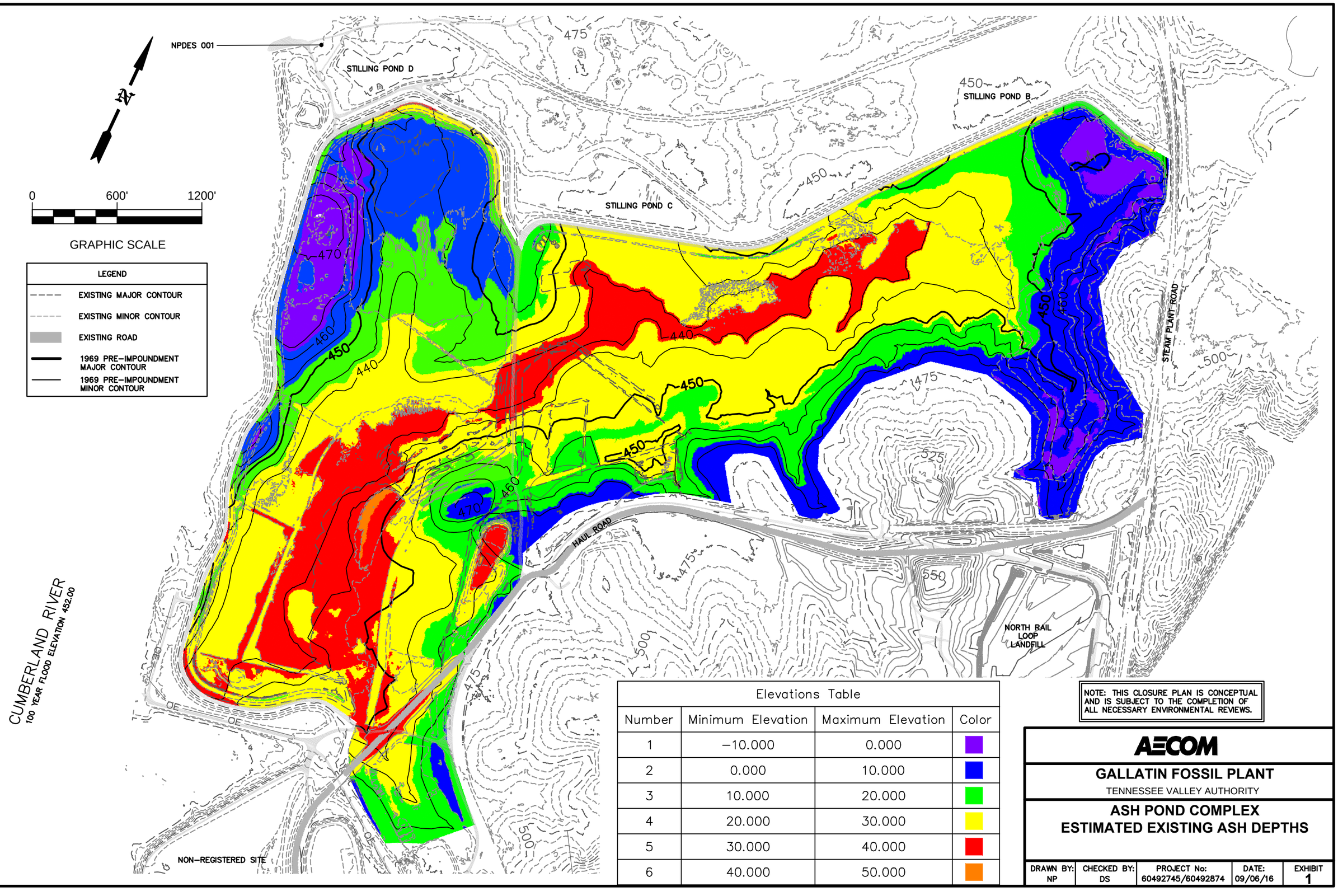
APPENDIX B



Elevations Table

Number	Minimum Elevation	Maximum Elevation	Color
1	−10.000	0.000	
2	0.000	10.000	
3	10.000	20.000	
4	20.000	30.000	
5	30.000	40.000	
6	40.000	50.000	

NOTE: THIS CLOSURE PLAN IS CONCEPTUAL AND IS SUBJECT TO THE COMPLETION OF ALL NECESSARY ENVIRONMENTAL REVIEWS.

AECOM

GALLATIN FOSSIL PLANT

TENNESSEE VALLEY AUTHORITY

ASH POND COMPLEX
ESTIMATED EXISTING ASH DEPTHS

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NP	DS	60492745/60492874	09/06/16	1

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